



SPYWOLF

Security Audit Report



Completed on
August 10, 2023

@SPYWOLFNETWORK



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SPYWOLF.CO





OVERVIEW

This audit has been prepared for **Carol Protocol** to review the main aspects of the project to help investors make an informative decision during their research process.

You will find a summarized review of the following key points:

- ✓ Contract's source code
- ✓ Owners' wallets
- ✓ Tokenomics
- ✓ Team transparency and goals
- ✓ Website's age, code, security and UX
- ✓ Whitepaper and roadmap
- ✓ Social media & online presence

“

The results of this audit are purely based on the team's evaluation and does not guarantee nor reflect the projects outcome and goal

- SPYWOLF Team -

”





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Carol Protocol



PROJECT DESCRIPTION

According to their documentation:

CAROL is utilized in bonding mechanisms, allowing participants to lock their funds for a specific period in exchange for potential earnings and participation in protocol governance.

The CAROL token serves as a key component in liquidity pools, facilitating exchanges and creating sustainable market conditions for all participants. It serves as a central element within the network, providing unique opportunities for participation in bonding and liquidity provision.

Release Date: Lunches August, 2023

Category: ROI protocol

01



CONTRACT 1 INFO

Token Name N/A	Symbol N/A
Contract Address 0x5A5445C88138156A8bB2D1811156B641451dE41e	
Network Base	Language Solidity
Deployment Date Aug 08, 2023	Verified? Yes
Total Supply N/A	Status Launched

TAXES



Our Contract Review Process

The contract review process pays special attention to the following:

- ✓ Testing the smart contracts against both common and uncommon vulnerabilities
- ✓ Assessing the codebase to ensure compliance with current best practices and industry standards.
- ✓ Ensuring contract logic meets the specifications and intentions of the client.
- ✓ Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- ✓ Thorough line-by-line manual review of the entire codebase by industry experts.

Blockchain security tools used:

- OpenZeppelin
- Mythril
- Solidity Compiler
- Hardhat



TOKEN TRANSFERS STATS

Transfer Count	N/A
Uniq Senders	N/A
Uniq Receivers	N/A
Total Amount	N/A
Median Transfer Amount	N/A
Average Transfer Amount	N/A
First transfer date	N/A
Last transfer date	N/A
Days token transferred	N/A

SMART CONTRACT STATS

Calls Count	4
External calls	4
Internal calls	12
Transactions count	3
Uniq Callers	4
Days contract called	1
Last transaction time	Aug-08-2023 02:37:09 PM +UTC
Created	Aug-08-2023 10:25:57 AM +UTC
Create TX	0x4bb1a442685bfa62e5c9ae2d5cfc69b7a37fba884a17a16defd33427d84c80fd
Creator	0xf993ac8c118e3cc16a8c37accfdd442b2fd6666



VULNERABILITY CHECK

Design Logic	Passed
Compiler warnings.	Passed
Private user data leaks	Passed
Timestamp dependence	Passed
Integer overflow and underflow	Passed
Race conditions and reentrancy. Cross-function race conditions	Passed
Possible delays in data delivery	Passed
Oracle calls	Passed
Front running	Passed
DoS with Revert	Passed
DoS with block gas limit	Passed
Methods execution permissions	Passed
Economy model	Passed
Impact of the exchange rate on the logic	Passed
Malicious Event log	Passed
Scoping and declarations	Passed
Uninitialized storage pointers	Passed
Arithmetic accuracy	Passed
Cross-function race conditions	Passed
Safe Zeppelin module	Passed
Fallback function security	Passed



THREAT LEVELS

When performing smart contract audits, our specialists look for known vulnerabilities as well as logical and access control issues within the code. The exploitation of these issues by malicious actors may cause serious financial damage to projects that failed to get an audit in time. We categorize these vulnerabilities by the following levels:

High Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Medium Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Low Risk

Issues on this level are minor details and warning that can remain unfixed.

Informational

Information level is to offer suggestions for improvement of efficacy or security for features with a risk free factor.



FOUND THREATS

⚠ High Risk

Owner can issue new bonds for free.
This can lead to liquidity drain.

```
function influencerBond(address userAddr, uint256 tokensAmount) external onlyOwner {
    require(users[userAddr].bondsNumber < Constants.BONDS_LIMIT, "User have reached bonds limit");
    require(IERC20(TOKEN_ADDRESS).balanceOf(address(this)) >= tokensAmount, "Insufficient token balance");

    users[userAddr].balance+= tokensAmount * 5 / 100;
    uint256 ethAmount = getETHAmount(tokensAmount * 95 / 100);
    uint8 bondIdx = newBond(userAddr, 4, ethAmount, 0);

    CAROLToken(TOKEN_ADDRESS).burn(tokensAmount);

    emit Events.NewBond(
        userAddr, 4, bondIdx, ethAmount, tokensAmount * 95 / 100, false, block.timestamp
    );
}
```

- Recommendation:
 - No one should be able to issue new bonds for free.



Informational

Owner can activate/deactivate bond types.
Every bond type have different ROI and freeze periods.

```
function activateBondType(uint8 bondType) external onlyOwner {
    require(bondType > 0 && bondType < 4, "Invalid bond type");
    BOND_ACTIVATIONS[bondType] = true;
}

function deactivateBondType(uint8 bondType) external onlyOwner {
    require(bondType > 0 && bondType < 4, "Invalid bond type");
    BOND_ACTIVATIONS[bondType] = false;
}

bool[5] public BOND_ACTIVATIONS = [
    true,
    false,
    false,
    false,
    false
];

uint256[5] public BOND_FREEZE_PERIODS = [
    30 days,
    20 days,
    10 days,
    5 days,
    100 days
];

uint256[5] public BOND_FREEZE_PERCENTS = [
    5000,
    3200,
    1600,
    800,
    0
];
```



Informational

When users set address they buy with for referral or address(0) or address that is not participating in the project yet (address with 0 bonds), the user becomes referral to default address assigned by project owner.

Referral rewards can go from 5% up to 20% from user's deposited value based on how many total funds users collected from previous referrals.

```
function buy(address upline, uint8 bondType) external payable {
    .....
    bool isNewUser = false;
    Models.User storage user = users[msg.sender];
    if (user.upline == address(0)) {
        isNewUser = true;
        if (upline == address(0) || upline == msg.sender || users[upline].bondsNumber == 0) {
            upline = DEFAULT_UPLINE;
        }
        user.upline = upline;

        if (upline != DEFAULT_UPLINE) {
            users[upline].referrals.push(msg.sender);
        }

        emit Events.NewUser(
            msg.sender, upline, block.timestamp
        );
    }
    .....
}
```



Informational

There is 10% fee for bonds buy/staking that goes to the project's owner.

```
function buy(address upline, uint8 bondType) external payable {  
    .....  
    uint256 adminFee = msg.value / 10;  
    payable(owner()).transfer(adminFee);  
    .....  
}  
  
function stake(uint8 bondIdx) external payable {  
    .....  
    uint256 adminFee = msg.value / 10;  
    payable(owner()).transfer(adminFee);  
    .....  
}
```



RECOMMENDATIONS FOR

GOOD PRACTICES

1

Consider fundamental tradeoffs

2

Be attentive to blockchain properties

3

Ensure careful rollouts

4

Keep contracts simple

5

Stay up to date and track development

Carol

GOOD PRACTICES FOUND

- ✓ The owner cannot set a transaction limit

CONTRACT 2 INFO

Token Name
CAROL

Symbol
CAROL

Contract Address

0x095bA67e20d026fb7778C63b307744Dc2095a745

Network
Base

Language
Solidity

Deployment Date
Aug 08, 2023

Verified?
Yes

Total Supply
1,000,516

Status
Launched

TAXES

Buy Tax
N/A

Sell Tax
N/A

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Blockchain security tools used:

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- Mythril
- Solidity Compiler
- Hardhat



FOUND THREATS

⚠ High Risk

Owner can set main contract address to any address.

Main contract address can mint new tokens.

Tokens minting may lead to future decline in token's price in future and/or liquidity drain.

```
function setMainContractAddress(address contractAddress) external onlyOwner {
    mainContractAddress = contractAddress;
}

function mint(address to, uint256 amount) public {
    require(msg.sender == mainContractAddress, "Mint: only main contract can mint tokens");
    _mint(to, amount);
}

function _mint(address account, uint256 amount) internal virtual {
    require(account != address(0), "ERC20: mint to the zero address");
    _beforeTokenTransfer(address(0), account, amount);
    _totalSupply += amount;
    unchecked {
        _balances[account] += amount;
    }
    emit Transfer(address(0), account, amount);
    _afterTokenTransfer(address(0), account, amount);
}
```

- Recommendation:
 - Minting functionality should not be accessible to others, except the initially set main contract.



Informational

Owner can enable/disable token buys.

```
function unlockBuy() external onlyOwner {
    buyLocked = false;
}

function lockBuy() external onlyOwner {
    buyLocked = true;
}

function _beforeTokenTransfer(address from, address to, uint256 ) internal view override {
    if (LP_TOKEN_ADDRESS == address(0) || !buyLocked) {
        return;
    }

    if (from == LP_TOKEN_ADDRESS || from == UNISWAP_ROUTER_ADDRESS) {
        require(
            to == mainContractAddress
            || to == UNISWAP_ROUTER_ADDRESS
            || to == LP_TOKEN_ADDRESS
            || to == address(0),
            "Transfer: only main contract can buy tokens"
        );
    }
}
```




RECOMMENDATIONS FOR

GOOD PRACTICES

1

Consider fundamental tradeoffs

2

Be attentive to blockchain properties

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Ensure careful rollouts

4

Keep contracts simple

5

Stay up to date and track development

Carol

GOOD PRACTICES FOUND

- ✓ The owner cannot set a transaction limit



This is *ROI staking dapp with referral system that allows users to get up to 20% from each referral. When users choose to stake their capital (bonds/liquidity) they can earn up to 200% of their initial investment over time.

More information can be found in the project's documents page:

<https://carol-8.gitbook.io/documentation/description-of-the-carol-token/bonding-and-liquidity-provision-mechanisms>

ROI dapps are considered as high risk and can cause significant losses of capital.

***DYOR before investing in any.**

**ROI – Return Of Investment*

**DYOR – Do Your Own Research*

TOKENOMICS



THE TEAM

! The team is anonymous

KYC INFORMATION

No KYC

We recommend the team to get a KYC in order to ensure trust and transparency within the community.





Website URL

https://carol.finance/

Domain Registry

https://www.namecheap.com/

Domain Expiration

2024-08-04

Technical SEO Test

Passed

Security Test

Passed. SSL certificate present

Design

Very nice appearance with appropriate color scheme and graphics.

Content

The information helps new investors understand what the product does right away. No grammar mistakes found.

Whitepaper

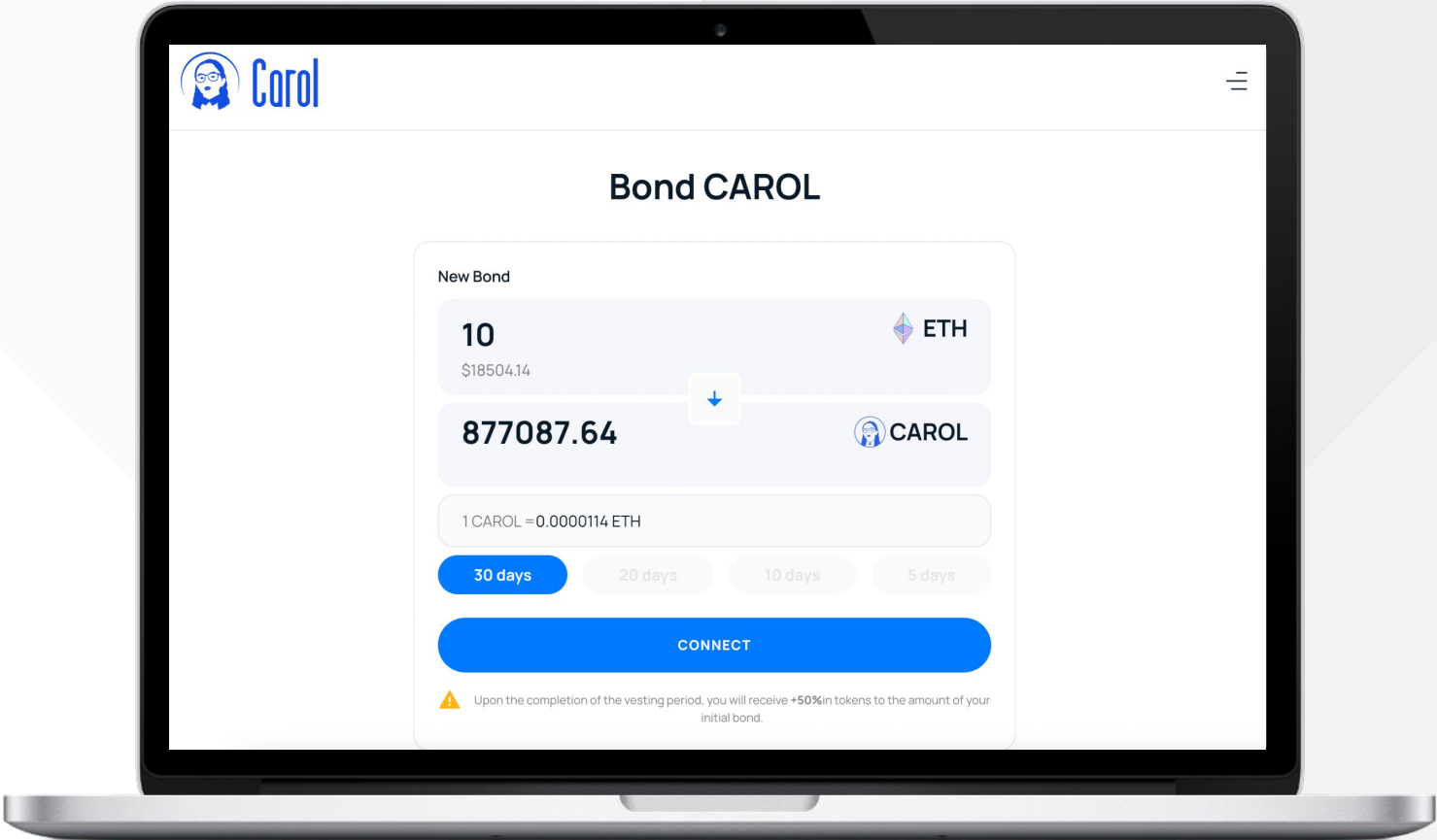
Well written, explanatory.

Roadmap

No

Mobile-friendly?

Yes



carol.finance

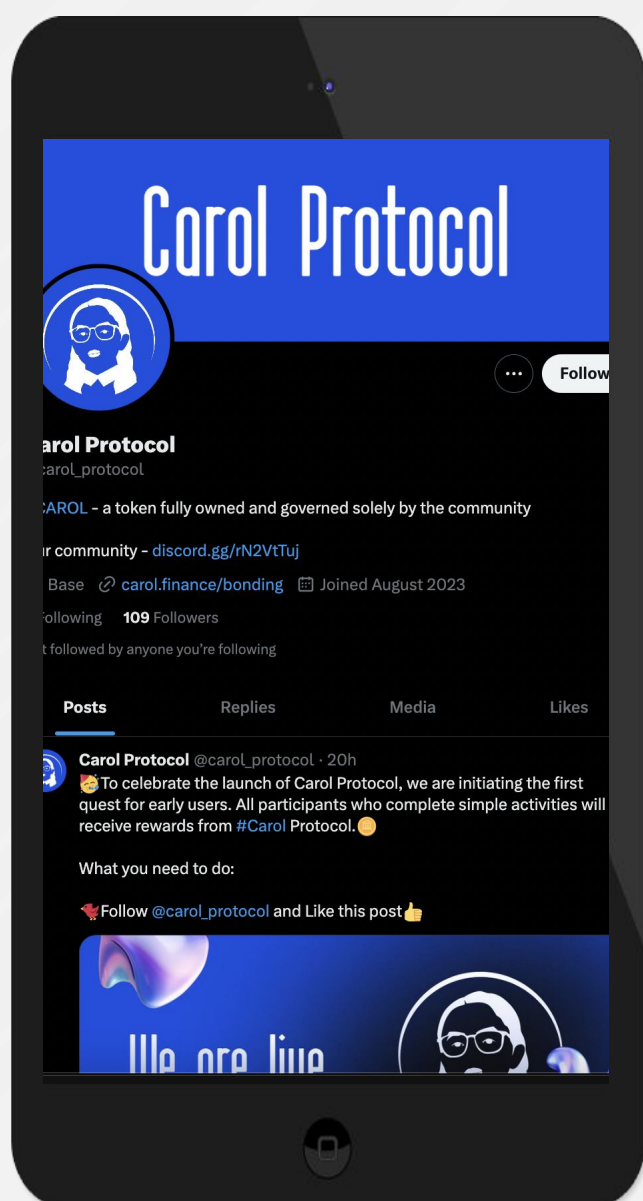


SOCIAL MEDIA & ONLINE PRESENCE



ANALYSIS

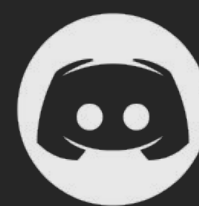
Project's social media pages are new.



Twitter

@carol_protocol

- 102 followers
- 4 total posts
- Active



Discord

<https://discord.com/invite/rN2VtTuj>

- 4 members



Telegram

@CAROL_protocol_group

- 1 187 members
- No active members
- No active mods



Medium

- Not available



SPYWOLF

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Audits | KYCs | dApps
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ABOUT US

We are a growing crypto security agency offering audits, KYCs and consulting services for some of the top names in the crypto industry.

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Disclaimer

This report shows findings based on our limited project analysis, following good industry practice from the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, overall social media and website presence and team transparency details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report.

While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below – please make sure to read it in full.

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No applications were reviewed for security. No product code has been reviewed.